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garded as logical theory, that the book has more than a pedagogical significance. It has succeeded so well that it can hardly fail to challenge criticism, the criticism of that which it has exposed.

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The Color Sensitivity of the Peripheral Retina. JOHN WALLACE BAIRD. Washington: Carnegie Institution. 1905. Pp. 80.

This paper commences with a summary of the experimental work done on the sensitiveness of the retina to color, which may be called as good as perfect. It is concise and gives the gist of each of the experiments in their chronological order and with careful references to the original places of publication. Two general conclusions can be drawn from this mass of work: "All colors tend to assume a yellowish or a bluish tint as they approach the periphery; yellow and blue do not themselves change in tone, but the less refrangible end of the spectrum—the reds, the oranges and the greens—together with the more reddish purples, appear more and more yellowish as they recede from the visual axis; while the more refrangible end of the spectrum—the violets—together with the violetish purples, pass over into bluish or even blue, at but a slight distance from the fovea. . . . The saturations of all color stimuli appear to diminish gradually and steadily, from the fovea to the outer limits of vision; in addition to the yellow and the blue, a certain tone of red and a certain tone of green undergo no change of color in indirect vision." The three experimental papers, by Bull, Hess and Hegg, which have observed all the necessary precautions, show, furthermore, that 'the retinal sensitivity to a certain red is coextensive with that to a certain green; the sensitivity to a certain yellow is coextensive with that to a certain blue; the former pair of color zones is much narrower than the latter pair.'

It seems also well established that all the color zones increase with an increase in the saturation, area and intensity of the stimulus. In fact, "the more recent workers at least, are of the opinion that even the peripheral retina is not, strictly speaking, color-blind. Its 'color sense' may be so weak that a relatively strong stimulation is required to call forth the whole manifold of sensation qualities which it is capable of furnishing; but that it may, under appropriate conditions, furnish the same quality series as the more acute central regions is no longer doubted." This should seem to bear interestingly on von Kries's theory of peripheral vision, and Baird does not hesitate to say that 'it seems evident throughout that the behavior of the eccentric regions of the retina has given von Kries an endless amount of trouble; and his own discussion shows that his theory is wholly inadequate to account for the phenomena in question.'

The experimental portion of Baird's paper deals with two questions, the chromatic character of the sensation aroused when a constant color stimulus is applied successively to different regions of the retina, and the relative extension of the retinal areas within which the tones of the different color stimuli are correctly recognized. The list of the various changes in sensation aroused by the various color stimuli in passing from the fovea to the periphery is too long to give here, but Baird concludes that 'if the stimulation be sufficiently intensive, all colors may be recognized at the extreme periphery.' It was incidentally found that a peripheral stimulus applied constantly and continuously gives a sensation which is by no means constant, but decreases in saturation and frequently changes in color tone as well. These changes are tabulated. Previous stimulations of which the after-images have entirely lapsed may, nevertheless, modify the color tones of succeeding stimulations.

Baird rightly insists that any determination of the relative extension of different retinal zones is worthless unless such colors are used as do not change in tone while they move from the fovea to the periphery (*i. e.*, are physiologically stable); and especially such as are equal in intensity and in saturation. "The equating of the white-values was accomplished by comparing the brightness of the gray sensation aroused by each upon the peripheral retina." The quality of color values was insured by the particularly clever device of mixing these colors, already white-equated, on a color disk and changing the color values until the mixture was a perfect gray. If then a white-value was found to have been altered it was corrected, and the process repeated until by successive approximations four colors were obtained (red, yellow, green and blue) which were equal in both intensity and saturation. "Eight half-meridians were explored," and "the results show that the zone of stable red is coextensive with that of stable green, that the zone of stable yellow is coextensive with that of stable blue, that the yellow-blue zone is much more widely extended in all directions than is the red-green zone."

The experimental work seems to have been done with admirable care and the paper is written up with that conciseness and excellence of style that have characterized such of the publications of the Carnegie Institution as have come under this reviewer's eye.

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Psicologia Fisiologica. G. MANTOVANI. Milan: Ulrico Hoepli. 1905. Pp. 175.

We have here what is seldom attempted, a real primer of physiological psychology. Naturally the book can have value for few outside of the Italian public, but for Italians who want to find out what sort of a study modern psychology is, this tiny manual should be excellent. It is extremely elementary, of course, but surprisingly solid for a book of its size and purpose. The author in his preface to the first edition (1896) regrets that psychology is little cultivated in Italy, and that the public is either unaware that such a study exists or has a wholly mistaken idea of it. Dr. Mantovani hopes only to spread a little the true notion of the experimental study of mental facts, and to incite some to the reading of larger books. As psychology in Italy is to-day far from negligible, and as a second edition of this little book has been called for after nine years, it may have had its measure of success.